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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
RAHMJOO, MANUCHER	

ART UNIT	PAPER NUMBER
2628	

DATE MAILED: 10/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/040,056	SILVERSTEIN, AMNON	
	Examiner	Art Unit	
	Mike Rahmjoo	2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *8/18/06*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *16-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *16-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 16- 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tice(US Patent 6,317,158) in view of Szelliski et al (US Patent 6,009,190) hereinafter, Szeliski.

As per claims 16 and 21 Tice teaches mapping a plurality of sub- pixels (see for example column 5 lines 19- 22 and fig. 4) of said display to corresponding spatial regions of said image, wherein each sub- pixel of said display is mapped to a unique spatial region of said image see for example column 5 lines 10- 25 and fig. 4 wherein spatial mapping is defined by the effect definition which defines spatial mapping of the data into an output field horizontal and vertical sub- pixel positions; for each sub- pixel, calculating an intensity value for said sub- pixel using only intensity information for a first color from said corresponding spatial region see for example column 3 line 30 clearly stating "sub- pixel positioning an image, such as a title or other character

information, matte, raster scan image or other static information" and column 3 line 45-46 which states determination "as a function of the subpixel position and two pixels" and also column 4 lines 51- 53 "each pixel in the output line is the sum of these three components, scaled by a factor of two" which is a clear indication of the utilization of the sub- pixel components in a given pixel of the output; and rendering said image on said display, based on said calculated intensities see for example column 5 lines 24-27 for the output transmission or display corresponding to rendering.

However, Tice does not teach accessing said image, said image sampled at a higher spatial resolution than the spatial resolution of said display.

Szeliski teaches accessing said image, said image sampled at a higher spatial resolution than the spatial resolution of said display see for example figures 2- 7 column 13 lines 27- 31;

It would have been made obvious to one of ordinary skilled in the art at the time the invention was made to incorporate the teachings of Szeliski into Tice to have automatic construction of large, high resolution image mosaics such as large aerial and satellite images and therefore include applications with scene stabilization, change detection, video compression and video indexing, increasing the field of view and resolution of a camera, and even simple photo editing and thus improve the quality output being displayed see for example column 2 lines 54- 67.

As per claim 17 Szeliski teaches averaging the intensity value of said first color over a plurality of regions neighboring said spatial region of said image, wherein each of said areas maps to its own plurality of spatial regions see for example column 30 lines

20- 21.

It would have been made obvious to one of ordinary skilled in the art at the time the invention was made to incorporate the teachings of Szeliski into Tice to have blending of the pixel values accomplished by averaging the image pixel values such that each image pixel value is downweighted in accordance to its proximity to an edge of the corresponding image and therefore improve the quality output being displayed see for example column 5 lines 5- 10.

As per claim 18 Szeliski teaches based on the intensity of said first color in said spatial region of said image, calculating an uncompensated intensity value for said first color(computation of intensity through triangles with id tags) see for example column 29 lines 57- 67 and figure 31; and calculating an error for each of the rest of said plurality of colors within said region see for example column 11 lines 44- 56; and storing said errors (registration of errors) for said rest of said colors for processing further regions of said image see for example column 32 lines 43- 45; and calculating a compensated intensity value for said spatial region (compensation through de- ghosting; a method for improving quality of image mosaics see for example column 32 line 37), based on said uncompensated intensity value and errors which were calculated for said first color when processing other image regions see for example column 32 lines 54- 58.

It would have been made obvious to one of ordinary skilled in the art at the time the invention was made to incorporate the teachings of Szeliski into Tice to perform different calculations of intensity and color and therefore reduce discontinuities in intensity and color between the images see for example column 2 lines 30- 40.

As per claim 19 Szeliski teaches calculating said errors for said spatial region (see for example column 11 lines 44- 56) when processing a spatial region for which uncompensated values are calculated for other colors of said plurality see for example column 29 lines 57- 67 and figure 31.

As per claim 20 Szeliski teaches filtering said image prior to calculating the intensity value of said sub- pixel, thereby producing an image with the same color scheme as said display see for example column 29 lines 18- 20.

It would have been made obvious to one of ordinary skilled in the art at the time the invention was made to incorporate the teachings of Szeliski into Tice to perform filtering prior to calculations of intensity and therefore eliminate small gaps in the texture map, and support filtering operations such as bilinear texture mapping and MIP mapping see for example column 29 lines 15- 20.

As per claim 22 Szeliski teaches based on the intensity of said first color in said plurality of spatial regions of said image, calculating an intensity value for said first color see for example column 29 lines 54- 67; and calculating an error for said first color see for example column 11 lines 44- 56; and propagating said error for said first color for processing further spatial regions of said image see for example column 32 lines 40- 42.

As per claim 23 Szeliski teaches using in the intensity value calculating an error that was propagated when processing another sub- pixel for said first color see for example column 12 lines 48- 50.

Response to Arguments

Applicant's arguments filed 08/18/06 have been fully considered but they are not persuasive.

As per applicant's remarks on page 3, applicant argues Tice does not teach "for each sub- pixel, calculating an intensity value ..." later arguing Tice does not teach "calculating an intensity value for said sub- pixel". Applicant further makes remarks on the basis that "applicant understands Tice to teach determination of intensity".

Examiner respectfully disagrees.

Examiner points out to applicant's remarks which seem to be in agreement with the teachings of Tice "calculation of the intensity" made through said determination. Examiner then points out to 3 different citations from Tice to teach "sub- pixel". 1) column 3 line 30 clearly states "sub- pixel positioning an image, such as a title or other character information, matte, raster scan image or other static information". 2) the teaching of Tice for "intensity calculation" would render incomplete had it not been for subpixel positioning as appears in column 3 line 45- 46 which states determination "as a function of the subpixel position and two pixels". And 3) as stated in column 4 lines 51- 53 "each pixel in the output line is the sum of these three components, scaled by a factor of two" which is a clear indication of the utilization of the sub- pixel components in a given pixel of the output. All of the above teachings are in accordance with applicant's claimed invention.

In response to applicant's arguments on page 4 wherein applicant recites "...using only intensity information for a first color from said corresponding spatial region", examiner points out to fig. 4 and column 3 line 44 corresponding to said first color and the effect definition which defines spatial mapping of data as corresponding to the spatial region as claimed by applicant. No distinction between "first color" as claimed by applicant vs. "color" of Tice is made and applicant does not provide further details in this regard throughout the specification.

In response to applicant's remarks regarding the rejection of May 23, 2006, examiner fails to see where examiner acknowledges any shortcomings by Tice regarding "sub- pixel" as claimed by applicant. As recited in rejection of May 23, 2006, a new ground(s) of rejection is made in view of different interpretation of the previously applied references.

Applicant further argues on page 6 the combination of Tice in view of Szeliski as not meeting the requirements of the prima facie case of obviousness and pints out to "calculating an intensity value for said sub- pixel" as pertaining to Szeliski in the appeal brief filed March 13, 2006. Examiner points out to current rejection (on new grounds) which makes the rejection for said portion of the claim as pertaining to Tice. And Tice as outlined earlier clearly teaches said step(s).

As to lack of motivation to combine on page 6 and in response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of

references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicant further argues on page 7 Tice teachings as pertaining to the having the same spatial resolution and as being in contradiction with what is claimed.

In response examiner respectfully points out to the reasons behind why the secondary reference was introduced and that is where Tice fills in the gap.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Matrin et al US Patent 6714206 teaches a dithering system combines frame rate control techniques with contributions from overlapping pixels to establish the intensity level of each sub- pixel. The dithering system initially provides an assignment of frame numbers to each sub-pixel. The dithering system then receives a logical pixel color that includes an intensity value for each component color (e.g., red, green, and blue) for each logical pixel. The dithering system maps each component intensity value of each logical pixel to an intensity value with a low depth plus a remainder (corresponding to spatial mapping). The dithering system generates a subpixel intensity value for each subpixel of each logical pixel using frame rate control to adjust the intensity value of each subpixel based on the remainder and current frame number. The dithering system then calculates the intensity value for a subpixel by combining all the generated subpixel intensity values for that subpixel.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mike Rahmjoo whose telephone number is 571-272-7789. The examiner can normally be reached on 8 AM- 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kee Tung can be reached on 571-272-7794. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mike Rahmjoo

October 6, 2006

KEE M. TUNG
SUPERVISORY PATENT EXAMINER